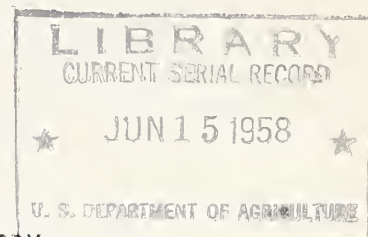


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1,932
V2Ag82AIC-320
Supplement 4Eastern Regional Research Laboratory
Philadelphia 18, PennsylvaniaPUBLICATIONS AND PATENTS
OF THE
EASTERN REGIONAL RESEARCH LABORATORY

January - June 1953

Single copies of available reprints may be obtained on request. At the time this list was prepared, the following were not available:

Nos. 717, 760, 773

When requesting reprints, please order by number.

Photostat copies of publications usually can be purchased at nominal cost through the Bibliofilm Service of the Library of the U. S. Department of Agriculture, Washington 25, D. C.

Publications and Patents of the Eastern Regional Research Laboratory issued before 1951 are listed in AIC-180 and Supplements 1 to 6.

This supplement includes an index which covers AIC-180 and Supplements 1 through 6, and AIC-320 and Supplements 1 through 4.

BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY
AGRICULTURAL RESEARCH ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

1953

January - June

Publications

- 715 Aceto, Nicholas C., Eskew, Roderick K., Phillips, G. W. Macpherson, Redfield, C. S., and Skalamera, John J.
REQUIREMENTS AND COSTS FOR PRESERVE ESSENCES EQUIPMENT The Glass Packer, vol. 32, no. 1, p. 23-25, 56, 58, January 1953.
Describes research on the recovery of essences from the commercial manufacture of fruit preserves. Equipment required for commercial operation is given as well as the cost of producing the essences. Results of storage tests on preserves containing the restored essence are included.
- 716 Ault, Waldo C.
RECENT ADVANCES IN UTILIZATION OF ANIMAL FATS. American Meat Institute Proceedings of the Fifth Research Conference on Research, p. 18-25, 1953.
The economic and technological background of the animal fat industry is briefly presented. Examples are cited to show that research offers considerable promise for eventually improving the present unhappy status of animal fats. Problems concerned with animal fat utilization now being investigated at the Eastern Regional Research Laboratory are outlined and briefly discussed. Some developments of private industry are also discussed.
- 717 Ault, W. C., and Riemenschneider, R. W.
ADVANCED FOOD PROCESSING WITH IMPROVED FATS AND OILS. I. FACTORS IN LARD'S COMEBACK. Food Engineering, vol. 25, p. 99-100, June 1953.
Various factors are noted that point to an increasing use of animal fats, particularly lard, as shortening. The principal factors involved are undoubtedly the lower price of lard and the recently developed technological means for improving it.
- 718 Bedford, C. L., and Robertson, W. F. (Michigan State College; work done under Research and Marketing Act Contract)
EFFECT OF SPRAY MATERIALS ON THE QUALITY OF CANNED AND FROZEN MONTMORENCY CHERRIES. Food Technology, vol. 7, p. 142-144, March 1953.
A 3-year study indicated that the spray materials ferbam, nabam, copper, copper and wax, and nabam and wax do not differ significantly in their effects on the quality of canned and frozen Montmorency cherries even though significant differences were found in the soluble solids contents of the canned cherries.
- 719 Beebe, C. W., Luvisi, F. P., and Happich, M. L.
TENNESSEE VALLEY OAK BARK AS A SOURCE OF TANNIN Journal of the American Leather Chemists Association, vol. 48, p. 32-41, January 1953; Shoe and Leather Reporter, vol. 269, no. 8, p. 15-17, 20-21, February 21, 1953, and vol. 269, no. 12, p. 18-21, March 21, 1953.
Reports tannin contents of barks from different oak species and indicates suitability for tanning extract of chipped barks mechanically separated from oak slabs.

- 720 Beinhart, E. G., Woodward, C. F., Willits, C. O., Ricciuti, C., Badgett, C. O., and Willaman, J. J.
NICOTIANA RUSTICA. DISTRIBUTION OF NICOTINE IN THE PLANT, LOSS OF NICOTINE DURING DRYING, AND METHODS OF ANALYSES FOR NICOTINE AND MOISTURE. AIC-335, February 1953. (Processed.)
A study of *Nicotiana rustica* grown at Wyndmoor, Pa., is reported. An adequate sampling technique for leaf blades was developed. During barn drying, there was no loss of nicotine and no translocation of nicotine from leaf to stalk. During oven drying, there was no loss of nicotine if the maximum temperature was not above 110° C. At 140°, there was physical distillation of nicotine and loss by chemical transformation. Distribution of nicotine in the various parts of the plant, both intact and pruned, was determined.
- 721 Brice, B. A., Nutting, G. C., and Halwer, M.
CORRECTION FOR ABSORPTION AND FLUORESCENCE IN THE DETERMINATION OF MOLECULAR WEIGHTS BY LIGHT SCATTERING. Journal of the American Chemical Society, vol. 75, p. 824-828, February 20, 1953.
The usefulness and accuracy of the light-scattering method is extended by showing that scattering ratios can be corrected for the presence of light absorption and fluorescence in scattering solutions.
- 722 Clarke, Ira D. (ERRL), and Ashbrook, Frank G. (Fish and Wildlife Service)
A TEST OF RACCOON SKINS FOR SUEDE LEATHER. Journal of the American Leather Chemists Association, vol. 48, p. 294-299, May 1953.
Reports results of study to determine the possibility of using raccoon skins for leather. The quality of the leather was not satisfactory.
- 723 Cording, James Jr., Willard, Miles J. Jr., Edwards, Paul W., and Eskew, Roderick K.
LOW-TEMPERATURE SOLVENT FRACTIONATION OF ANIMAL FATS. PART I. EVALUATION OF ANHYDROUS SOLVENTS FOR CRYSTALLIZATION OF WHITE GREASE.
Journal of the American Oil Chemists' Society, vol. 30, p. 66-70, February 1953.
Compares five selected solvents as media for fractionating white grease by low-temperature crystallization. Yields of the liquid fractions (lard oil) obtained by crystallizing at temperatures in the range of about 20 to 45° F. are plotted against quality (as indicated by titer) for each solvent. Preliminary data are given that show the effects of variables other than crystallization temperature which influence the yield and quality of the liquid fraction.
- 724 Cording, James Jr., Willard, Miles J. Jr., Edwards, Paul W., and Eskew, Roderick K.
LOW-TEMPERATURE SOLVENT FRACTIONATION OF ANIMAL FATS. II. EVALUATION OF WATER-SATURATED SOLVENTS FOR CRYSTALLIZATION OF WHITE GREASE.
Journal of the American Oil Chemists' Society, vol. 30, p. 111-113, March 1953.
Presents data on the effect of crystallization temperature on yields and constants of liquid and solid fractions obtained by crystallization of white grease from four selected solvents, water-saturated. These data are compared with similar data, published earlier by the same authors, evaluating the same solvents, anhydrous.

- 725 Costello, E. J., and Filachione, E. M.
PREPARATION AND PROPERTIES OF PURE AMMONIUM DL-LACTATE Journal of the American Chemical Society, vol. 75, p. 1242-1244, March 5, 1953.
Crystalline ammonium lactate was isolated from the aqueous solution of the salt obtained by neutralizing lactic acid with ammonia. The melting point, solubility characteristics, hygroscopicity, and distillation behavior of this salt are reported. The refractive index, density, and viscosity values of aqueous solutions up to 80 percent concentration were determined at 20°, 25°, and 40° C. The potentiometric titration of lactic acid with ammonia and the replacement of ammonia in ammonium lactate by amines are also reported.
- 726 Eddy, C. Roland, Wall, Monroe E., and Scott, Mary Klumpp
CATALOG OF INFRARED ABSORPTION SPECTRA OF STEROIDAL SAPOGENIN ACETATES. Analytical Chemistry, vol. 25, p. 266-271, February 1953.
Infrared absorption spectra between 700 and 1400 cm.⁻¹ are presented for the acetates of twelve of the most common steroidal sapogenins found in plants. A systematic procedure is given for identifying sapogenins by comparison of their spectra with these reference curves.
- 727 Fein, M. L., and Filachione, E. M.
N-SUBSTITUTED LACTAMIDES Journal of the American Chemical Society, vol. 75, p. 2097-2099, May 5, 1953.
N, N-disubstituted lactamides that are difficult to obtain by aminolysis of methyl lactate with secondary amines were readily prepared by dehydration of the lactic acid-secondary amine salt. The preparation and properties of various dialkyl, alkyl aryl, aralkyl, and hydroxyalkyl lactamides are reported.
- 728 Fein, M. L., and Filachione, E. M.
ESTER-AMIDES OF LACTIC ACID. Journal of the American Chemical Society, vol. 75, p. 2099-2101, May 5, 1953.
Various esters of N-substituted lactamides, particularly dialkyl, hydroxyalkyl and di(hydroxyalkyl) lactamides, were prepared. Concurrent esterification and dehydration to produce satisfactory yields of esters of lactamides were accomplished by heating a mixture of the lactic acid-amine salt, fatty acid, and an entraining agent.
- 729 Filachione, E. M., Fitzpatrick, T. J., Rehberg, C. E., Woodward, C. F., Palm, W. E., and Hansen, J. E.
ACRYLIC ELASTOMERS. PREPARATION AND PROPERTIES OF VULCANIZABLE ACRYLIC ESTER-ACRYLONITRILE COPOLYMERS Rubber Age, vol. 72, p. 631-637, February 1953.
Copolymers of various acrylic esters, from ethyl to octyl, with 5 to 15 percent acrylonitrile and methacrylonitrile were prepared by refluxing emulsion polymerization and in two instances by "Redox" polymerization. These copolymers were easily vulcanized with sulfur and triethylene tetramine recipes. The vulcanizates, except those obtained from octyl acrylate copolymers, showed good heat-resisting properties.

- 730 Fochtman, E. G., Kinney, L. C., and Ference, G. G. (Armour Research Foundation of Illinois Institute of Technology), and Riemenschneider, R. W., Morris, S. G., and Ault, W. C. (ERRL). (Work done under Research and Marketing Act Contract).
ANIMAL FATS IN HOT DIP TINNING. AIC-354, April 1953. (Processed.)
Laboratory evaluation tests were conducted on a series of industrial animal fats, such as white grease, tallow, and lard, and these industrial fats modified by well-known processing treatments for potential use in hot-dip tinning of steel sheets. The results indicated that the better grades of these animal fats with appropriate treatment could successfully replace palm oil in the tinning operation.
- A choice white grease, selectively hydrogenated, deodorized, and stabilized with antioxidant, was given a full-scale plant evaluation in hot-dip tinning. Its performance in tinning, as judged by the plant personnel and by operational data, was equal to palm oil in every respect and better in some respects.
- 731 Gordon, William G., and Semmett, William F.
ISOLATION OF CRYSTALLINE α -LACTALBUMIN FROM MILK. Journal of the American Chemical Society, vol. 75, p. 328-330, January 20, 1953.
A protein, previously named "crystalline insoluble substance," was isolated in crystalline form from the albumin fraction of bovine milk whey. The crystalline protein is homogeneous both in the electrophoresis apparatus and in the ultra-centrifuge. Its sedimentation and diffusion constants check well with those reported for α -lactalbumin (Kekwick's lactalbumin). There is little doubt that the substances are identical, and it is proposed that the protein in milk whey of approximate molecular weight 16,000 and electrophoretic mobility = -4.2 at pH 8.5 be called α -lactalbumin. This protein comprises about 12 percent of the total proteins of whey.
- 732 Gordon, William G., Semmett, William F., and Bender, Maurice
AMINO ACID COMPOSITION OF γ -CASEIN. Journal of the American Chemical Society, vol. 75, p. 1678-1679, April 5, 1953.
 γ -Casein was analyzed for its constituent amino acids. Such physical properties of the protein as solubility, electrophoretic mobility, and specific volume were related to its amino acid composition.
- 733 Herb, S. F., and Riemenschneider, R. W.
SPECTROPHOTOMETRIC MICROMETHOD FOR DETERMINING POLYUNSATURATED FATTY ACIDS. Analytical Chemistry, vol. 25, p. 953-955, June 1953.
A spectrophotometric micromethod was developed for determining polyunsaturated acids. This method, based on isomerization with 21 percent KOH-glycol, gives reproducible results on samples of 1 to 10 mg. comparable with those obtained by macromethods. Constants for use in the method are available for linoleic, linolenic, arachidonic, and pentaenoic acids. The most important application of the method should be in biological and medical research when only a few milligrams of sample are available for analyses.

- 734 Hills, Claude H., and Whittenberger, R. T.
STUDIES ON THE PROCESSING OF RED CHERRIES. II. SOME EFFECTS OF BRUISING ON THE YIELD AND QUALITY OF CANNED MONTMORENCY CHERRIES.
Food Technology, vol. 7, p. 32-35, January 1953.
The bruising of fresh cherries prior to the soaking period increased both the ratio of drained weight to put-in weight and the tenderometer reading of the canned product. Under the experimental conditions employed, however, bruising had almost no effect on final yield, color, and soluble solids content.
- 735 Hoover, Sam R.
BIOCHEMICAL OXIDATION OF DAIRY WASTES. V. A REVIEW. Sewage and Industrial Wastes, vol. 25, p. 201-206, February 1953.
A review of the work done at this laboratory on dairy waste disposal.
- 736 Johnson, John A., and Smith, Loren B. (Kansas Agricultural Experiment Station; work done under Research and Marketing Act Contract).
THE USE OF HONEY IN CAKE, COOKIE AND SWEET GOODS PRODUCTION. The American Baker, vol. 21, no. 1, p. 21 and 57, January 1953.
Cakes containing honey showed increased moisture retention, increased shelf life, with resultant improved eating qualities, and richer flavor. It was not found practical to replace more than one-third of the sugar by honey. It was found that color and flavor are the only variables of honey that need be considered in using honey in cakes. Proposed specifications for honey intended for use in cake products are given.
- 737 Krewson, C. F., Fenske, C. S., Jr., Couch, J. F., and Naghski, J.
RUTIN IN EUCALYPTUS SPECIES. American Journal of Pharmacy, vol. 125, p. 117-121, April 1953.
Leaves of 21 species of Eucalyptus growing in California were examined for rutin. Only one, *E. macrorrhyncha*, contained rutin. The rutin contents of leaves from 1- to 2-year-old trees were comparable with that of mixed leaves from mature trees.
- 738 Krewson, C. F., and Naghski, J.
OCCURRENCE OF RUTIN IN PLANTS. American Journal of Pharmacy, vol. 125, p. 190-200, June 1953.
A literature survey showed that rutin has been found in at least 32 plant families, including at least 65 plant species. Examination of 80 species representing 21 families failed to show any rutin.
- 739 Mellon, Edward F., Korn, Alfred H., and Hoover, Sam R.
THE TERMINAL AMINO GROUPS OF α - AND β -CASEINS Journal of the American Chemical Society, vol. 75, p. 1675-1678, April 5, 1953.
Dinitrofluorobenzene was used to label the amino groups of the α and β fractions of casein. The hydrolyzates of these protein derivatives were assayed for the various dinitrophenyl amino acids, which were shown to be present by chromatographic methods. The arginine derivative and both mono- and di- derivatives of lysine were found in each protein. The proportions, however, were different in each protein.

- 740 Mellon, Edward F., Viola, Samuel J., and Hoover, Sam R.
THE VAPOR PRESSURE OF ACETYLATED AMINO ACID ETHYL ESTERS Journal of Physical Chemistry, vol. 57, p. 607-608, June 1953.
A semimicro ebulliometer was used in conjunction with a manostat and mercury Zimmerli gauge to determine the vapor pressure-temperature curves of a number of acetylated amino acid ethyl esters over the pressure range of 2 to 90 mm. of mercury. The amino acids whose derivatives were studied are glycine, alanine, valine, leucine, isoleucine, phenylalanine, methionine, tyrosine, aspartic acid, and pyrrolidone carboxylic acid.
- 741 Montgomery, Rex
(CHEMICAL PRODUCTION OF LACTIC ACID AND OTHER ACIDS FROM MOLASSES) OBSERVATIONS ON ALKALINE DEGRADATION OF SUGARS. Industrial and Engineering Chemistry, vol. 45, p. 1144-1147, May 1953.
The alkaline degradation of sucrose, glucose, and fructose was studied, and the acidic products were investigated by chromatographic techniques. Formation of at least 13 acids was demonstrated. Recent work is discussed with reference to the products of oxidation of hydroxy acids with potassium permanganate.
- 742 Montgomery, Rex, and Ronca, Richard A.
CHEMICAL PRODUCTION OF LACTIC AND OTHER ACIDS FROM MOLASSES. REACTION CONDITIONS. Industrial and Engineering Chemistry, vol. 45, p. 1136-1141, May 1953.
The action of lime on molasses and raw sugar was investigated with a view to finding the extent to which lactic and other acids were produced.

Yields of acids were dependent on temperature, time of reaction, proportion of lime to sugar, and sugar molarity. Effects of these variables were interdependent. Yields of 50-60 percent of the theoretical amount of lactic acid were obtained, together with other acids, which usually amounted to 25 percent of the lactic acid. The acids were isolated as methyl esters. The butyl esters of the mixture of acids were esterified with adipic acid, and the resulting mixture was as efficient as dioctyl phthalate for plasticizing vinyl chloride resin.
- 743 Montgomery, Rex and Ronca, Richard A.
(CHEMICAL PRODUCTION OF LACTIC ACID AND OTHER ACIDS FROM MOLASSES) PURIFICATION PROCEDURES. Industrial and Engineering Chemistry, vol. 45, p. 1141-1143, May 1953.
The acids in crude lactic acid were separated from the non-acidic components as the zinc salts and methyl esters, and by extraction with solvents. It was possible to isolate pure lactic acid by recrystallization of the salts and fractional distillation of the methyl esters but not by solvent extraction alone with the solvents studied.

Separation of the mixture of acidic components from the chemical degradation of molasses is feasible by continuous extraction followed by continuous esterification. Isolation of pure lactic acid requires one further unit operation. It is possible, however, that the mixture of acids may be used in many cases where pure lactic acid is now employed.

- 744 Naghski, J., and Krewson, C. F.
THE PREPARATION AND ANALYSIS OF QUERCETIN. Journal of the American Pharmaceutical Association, Scientific Edition, vol. 42, p. 66-68, February 1953.
Data are presented on the preparation of quercetin by acid hydrolysis of pure rutin and quercitrin. The ultraviolet spectrophotometric method of assay as developed for the analysis of rutin was extended to the assay of quercetin.
- 745 Naghski, J., and Willits, C. O.
MAPLE SIRUP. VI. THE STERILIZING EFFECT OF SUNLIGHT ON MAPLE SAP COLLECTED IN A TRANSPARENT PLASTIC BAG. Food Technology, vol. 7, p. 81-83, February 1953.
Maple sap can be sterilized by exposure to sunlight in plastic bags transparent in the ultraviolet region. The bactericidal effect is more pronounced during cool weather and upon exposure to direct sunlight. During warm cloudy weather, the growth rate of the bacteria exceeds the killing rate by daylight.
- 746 Neumer, John F., and Dugan, L. R., Jr. (American Meat Institute Foundation; work done under Research and Marketing Act Contract)
THE USE OF ANTIOXIDANTS IN DRY DOG FOOD. Food Technology, vol. 7, p. 189-191, May 1953.
The effectiveness of various antioxidants in stabilizing mixes of a dry dog food with inedible grade animal fats was investigated. Certain antioxidants of the hindered phenolic types were most effective.
- 747 Neumer, John F., and Dugan, L. R. Jr. (American Meat Institute Foundation; work done under Research and Marketing Act Contract)
A NEW METHOD FOR MEASURING THE DEVELOPMENT OF RANCIDITY. Food Technology, vol. 7, p. 191-194, May 1953.
A rapid, objective method was devised for determination of the relative stabilities of dry animal feeds containing 5 percent or more of fat. The method is based on the colorimetric determination of volatile carbonyl compounds formed when the fat becomes rancid.
- 748 Ogg, C. L.
REPORT ON MICROANALYTICAL DETERMINATION OF SULFUR. Journal of the Association of Official Agricultural Chemists, vol. 36, p. 335-344, May 15, 1953.
Results of a collaborative study of the Carius and catalytic combustion methods for the microdetermination of sulfur are presented, with recommendations based on a statistical analysis of the data.
- 749 Ogg, C. L.
REPORT ON MICROANALYTICAL DETERMINATION OF NITROGEN BY THE DUMAS METHOD. Journal of the Association of Official Agricultural Chemists, vol. 36, p. 344-354, May 15, 1953.
A statistical analysis of the data obtained by 23 collaborators using the micro Dumas method for determining nitrogen.

- 750 Phillips, G. W. Macpherson, and Homiller, Richard P.
OIL FIRING FOR THE MAPLE SIRUP EVAPORATOR AIC-358, June 1953
(Processed.)

Use of oil instead of wood as fuel for maple sirup evaporators has certain advantages aside from the cost. It eliminates fluctuations in rate of evaporation, thereby making control of sirup density easier, and producing more uniform and better quality sirup. Under favorable conditions, continuous sirup drawoff may be possible. Use of oil saves much labor in the sugarhouse as well as in the wood lot. Under average conditions, the total costs of the fuels are about the same. If wood is valuable and labor scarce, oil will be cheaper, and vice versa.

- 751 Polis, B. David, and Shmukler, H. W.
CRYSTALLINE LACTOPEROXIDASE. I. ISOLATION BY DISPLACEMENT CHROMATOGRAPHY; II. PHYSICO-CHEMICAL AND ENZYMATIC PROPERTIES. Journal of Biological Chemistry, vol. 201, p. 475-500, March 1953.

The enzyme lactoperoxidase was isolated in pure crystalline form by displacement chromatography, and the physicochemical properties--molecular weight, iron and nitrogen contents, light absorption, and electrophoretic properties--were determined. The enzymatic properties, with dihydroxyphenylalanine as a substrate, were investigated.

- 752 Redfield, Clifford S., and Eskew, Roderick K.
APPLE ESSENCE RECOVERY COSTS The Glass Packer, vol. 32, no. 2, p. 33-35, 62, February 1953.

Discusses the cost of producing apple essence for sale rather than for restoration to apple juice products. Equipment for producing both high-fold and low-fold apple essences is described.

- 753 Ricciuti, Constantine, Willits, C. O., Knight, H. B., and Swern, Daniel
POLAROGRAPHIC STUDIES OF OXYGEN-CONTAINING COMPOUNDS. ACID ANHYDRIDES. Analytical Chemistry, vol. 25, p. 933-935, June 1953.

Polarographic studies of certain organic acid anhydrides and their corresponding acids and esters showed that the α , β -unsaturated acid anhydrides are polarographically reducible and that the corresponding acids and esters, with the exception of maleic acid, do not interfere with the polarographic waves of the anhydrides.

- 754 Schwartz, J. H., and Wrigley, A. N.
ALLYL STARCH EMULSIONS. IMPROVEMENT IN PREPARATION AND PROPERTIES AIC-351, March 1953. (Processed.)

Effects of different quantities of plasticizer and emulsifier on the stability of allyl starch emulsions and the hardness of their films are described. Use of cobalt complexes, some of which increased the rate of hardening of the emulsion films, is also discussed.

- 755 Siedler, A. J., and Schweigert, B. S. (American Meat Institute Foundation; work done under Research and Marketing Act Contract).
EFFECT OF THE LEVEL OF FAT IN THE DIET ON THE GROWTH PERFORMANCE OF DOGS. Journal of Nutrition, vol. 48, p. 81-90, September 1952.
The effect on the growth of dogs of adding different levels of a good grade of "inedible" white grease to a basal diet similar to commercial meal was investigated. The rate of gain for a 10-week period, when 4, 6, or 8 percent fat was added to the basal diet or when 6 percent fat was added to a commercial meal, were equal or slightly superior to those obtained when the diets without added fat were fed.
- 756 Smith, Claude R.
COMPLEX METAL-NICOTINE COMPOUNDS. Journal of the American Chemical Society, vol. 75, p. 2010-2012, April 20, 1953.
Nicotine double salts and nicotinamines containing one of the metals Cu, Co, Ni, Fe, Cd, Zn, Mn, Cr, Al, and Ag were prepared with organic acids such as thiocyanic, o-benzoyl benzoic, benzoic, salicylic, picric, p-nitrobenzoic, o-phthalic, oxalic, and succinic. Some of the compounds described appear to have value as insecticides and fungicides.
- 757 Smith, Loren B., and Johnson, John A. (Kansas Agricultural Experiment Station; work done under Research and Marketing Act Contract).
THE USE OF HONEY IN WHITE AND WHOLE WHEAT BREAD. American Bee Journal, vol. 93, no. 3, p. 118-119, March 1953; vol. 93, no. 4, p. 164-165, April 1953.
Pilot-plant investigations on the use of honey in production of white bread, whole wheat bread, and rolls were carried out to determine the effect of the natural variability of honey on the baked product and production schedules. Using 15 of the most important commercial types of honey, the authors found that color and flavor are the only variables that require attention. For the guidance of both buyer and seller, a set of specifications based on the results is suggested for honey to be used in these products.
- 758 Smith, Loren B., and Johnson, John A. (Kansas Agricultural Experiment Station; work done under Research and Marketing Act Contract).
HONEY. ITS VALUE AND USE IN POPULAR COOKIES. The Bakers Digest, vol. 27, p. 28-31, April 1953.
The effect of honey on the characteristics of the two principal types of cookie is reported. After storage studies on six representative cookies, a taste panel study was made of the effect of honey on the acceptability of the cookies. Coconut macaroons, fruit bars, and brownies made with honey met with most consistent approval.
- 759 Smith, Loren B., and Johnson, John A. (Kansas Agricultural Experiment Station; work done under Research and Marketing Act Contract).
HONEY IMPROVES FRUIT CAKE QUALITY. The Bakers Digest, vol. 27, no. 3, p. 52-54, June 1953.
In a study of the effect of honey on fruit cake, 15 floral types of honey were used. The honey-containing cakes stored for 120 days in general showed improved flavor, aroma, and slicing quality over similar cakes made with sucrose.

- 760 Swern, Daniel
EPOXIDATION AND HYDROXYLATION OF ETHYLENIC COMPOUNDS WITH ORGANIC PERACIDS *Organic Reactions*, vol. 7, chapter 7, p. 378-433, 1953, (John Wiley & Sons, Inc.).
Reviews the literature on the preparation of oxiranes and α -glycols by oxidation of ethylenic compounds with organic peracids. Typical experimental procedures for the preparation of organic peracids and their utilization in the preparation of oxiranes and α -glycols are given in detail. Approximately 400 literature references are included.
- 761 Swern, Daniel, Ault, Waldo C. (ERRL), and McCutcheon, John W. (private consultant, New York City; work done under Research and Marketing Act Contract).
A SURVEY ON RESEARCH POSSIBILITIES FOR ANIMAL FATS. AIC-346, January 1953. (Processed.)
Research possibilities for inedible and edible animal fats were investigated. The following major points were studied: (a) Inedible animal fats, their purification, separation and chemical modification, (b) fatty acids and derivatives, and (c) edible animal fat products. Recommendations for future research are made.
- 762 Swern, Daniel, and Parker, Winfred E.
APPLICATION OF UREA COMPLEXES IN THE PURIFICATION OF FATTY ACIDS, ESTERS, AND ALCOHOLS. III. CONCENTRATES OF NATURAL LINOLEIC AND LINOLENIC ACIDS *Journal of the American Oil Chemists' Society*, vol. 30, p. 5-7, January 1953.
Concentrates of natural linoleic acid (linoleic acid content, 85-95 percent) were prepared in 50-72 percent yields from corn oil fatty acids by preferential precipitation of the saturated and monounsaturated fatty acids at room temperature as their urea complexes.

By a similar procedure, concentrates of natural linolenic acid (linolenic acid content, 87-89 percent) were prepared in 55-61 percent yields from perilla oil fatty acids by preferential precipitation of the saturated, monounsaturated, and diunsaturated fatty acids. Although concentrates of natural linolenic acid containing only 66-70 percent linolenic acid were obtained from linseed oil fatty acids, yields were 87-90 percent.
- 763 Treadway, R. H.
PRODUCTION AND UTILIZATION OF WHITE POTATO STARCH. *Economic Botany*, vol. 7, p. 76-85, January-March 1953.
Summarizes the history of the potato starch industry in the United States. The various processing steps employed in producing potato starch are described, and the principal uses of this starch are discussed.
- 764 Weaver, E. A., Heisler, E. G., Porges, Nandor, McClennan, Marian S., Treadway, R. H., Howerton, W. W., and Cordon, T. C.
AEROBIC MICROBIOLOGICAL TREATMENT OF POTATO STARCH FACTORY WASTES. AIC-350, February 1953. (Processed.)
Reviews research on potato starch factory waste for the past 10 years. Gives data on the composition and polluting effect of the waste components, and describes experiments with aerobic microbiological treatments to reduce the oxygen demand of the waste.

- 765 Weaver, Elmer A., Cordon, Theone C., and John, Harry J.
CLOSURE FOR CULTURE BOTTLE. Mycologia, vol. 45, p. 307-309, March-April 1953.
An improved closure for wide-mouth culture bottles is described. It should be suitable for many types of containers used in culture work.
- 766 Weil, J. K., Witnauer, L. P., and Stirton, A. J.
EVIDENCE FOR α -SULFONATION IN THE REACTION OF PALMITIC ACID WITH SULFUR TRIOXIDE. Journal of the American Chemical Society, vol. 75, p. 2526-2527, May 20, 1953.
Evidence for α -sulfonation in the reaction of palmitic acid with sulfur trioxide lies in the conversion of sodium sulfopalmitic acid to bromopalmitamide and the identity of the X-ray diffraction pattern with that of α -bromopalmitamide.
- 767 Wells, P. A.
SOME PROBLEMS IN RESEARCH MANAGEMENT. The Chemist, vol. 30, 115-119, March 1953.
Problems encountered in the management of institutional research are discussed.
- 768 White, Jonathan W. Jr., and Maher, Jeanne
TRANSGLUCOSIDATION BY HONEY INVERTASE. Archives of Biochemistry and Biophysics, vol. 42, p. 360-367, February 1953.
Honey invertase produces six oligosaccharides by its action on sucrose; five of them differ from those formed by the action of yeast invertase on sucrose. When 75 percent of the sucrose has disappeared, 10 percent of the sugars consists of erlose, the principal intermediate sugar. Its structure, together with other evidence, indicates that honey invertase attacks the glucose part of sucrose and acts intermediately as a transglucosidase.
- 769 White, Jonathan W. Jr., and Maher, Jeanne
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Patents

COPIES OF PATENTS MAY BE PURCHASED FROM

THE UNITED STATES PATENT OFFICE, WASHINGTON 25, D. C.

Cording, James Jr., and Shaines, Alfred

FILTER. U. S. Patent No. 2,636,612, issued April 28, 1953.

Fein, Martin L., and Fisher, Charles H.

MIXED PLASTICIZERS. U. S. Patent No. 2,631,988, issued March 17, 1953.

Krewson, Charles F.

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